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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/875,884	06/06/2001	ShuangQuan Min	STI9683/40176.0044USU1	7247
7590	03/02/2004		EXAMINER	
John R. Wahl Merchant & Gould 1400 Independence Plaza Denver, CO 80265-0100			TZENG, FRED	
			ART UNIT	PAPER NUMBER
			2651	

DATE MAILED: 03/02/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/875,884

Applicant(s)

MIN ET AL.

Examiner

Fred Tzeng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 10-13 and 18-22 is/are rejected.
- 7) ☒ Claim(s) 5-9, 14-17, 23-28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in responsive to the amendment communication filed on December 22, 2003. This amendment has been entered and carefully considered. Claims 1-28 are still pending with claims 1, 10, 14 and 18 being amended.

Response to Arguments

2. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 10-13, 18-22 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Liu et al (USPN 6,476,995).

Regarding claim 10, Liu discloses a disturbance removal system for compensating for disturbances that causes track shape irregularities on a disc during a disc servo-writing process performed by a servo-writer moving a servo-writing head, the

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disturbances substantially attributable to a nonrepeatable runout (NRRO) substantially caused by a cage frequency generated in a motor supporting the disc (see column 3 lines 54-63), the disturbance removal system comprising: a reference position sensor (see column 9 lines 16-20); a reference cage frequency determination module electrically connected to the reference position sensor (see column 4 lines 13-17; i.e., the position control system); a feed-forward input signal determination module connected to the reference cage frequency determination module, determining a feed-forward input signal based on the reference cage frequency (see column 4 lines 25-40; i.e., the controller for outputting control signals); and a servo-writing module receiving the feed-forward input signal from the feed-forward input signal determination module, while the servo-writing head electrically connected to the servo-writing module is writing servo patterns on the disc during the servo-writing process (see column 3 lines 63-65 and column 4 lines 41-67).

Regarding claim 11, Liu discloses that the reference cage frequency determination module comprises: a reference track writing module causing the servo-writing module to write a reference track that has minimal track shape irregularities on the disc (see column 4 lines 13-15); a Position Error Signal (PES) measurement module that measures a series of reference PESs detected by the reference position sensor, each reference PES of the series sequentially corresponding to each sector on the reference track (see column 4 lines 15-17); a repeatable runout (RRO) determination module that determines a series of RROs for all sectors on the reference track, each RRO sequentially corresponding to a sector on the reference track, each RRO of a

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sector being an average of all PESs of the sector (see column 3 lines 14-16); and a reference cage frequency determination module that determines the reference cage frequency by subtracting the determined RRO of each sector on the reference track from the PES of the same sector measured during the servo-writing process (see column 4 lines 49-60).

Regarding claim 12, Liu discloses that the reference cage frequency determination module further comprises a phase adjusting module that adjusts a phase of the reference cage frequency based on an angular displacement of the reference position sensor relative to the servo-writing head (see column 4 lines 58-67 and column 5 lines 1-3).

Regarding claim 13, Liu discloses that the feed-forward input signal determination module comprises a calibration factor determination module that determines a calibration factor, wherein the feed-forward input signal determination module determines the feed-forward input signal based at least on the calibration factor and the phase adjusted reference cage frequency (see column 4 lines 49-57).

Regarding claim 18, Liu discloses a disturbance removal system for compensating for disturbances causing track shape irregularities on a disc during a disc servo-writing process, the disturbances attributable to a nonrepeatable runout (NRRO) generated in the disc (see column 3 lines 60-63), the disturbance removal system comprising: a servo-writer that performs the servo-writing process (see column 3 lines 63-65); and means for determining a feed-forward input signal for the servo-writer based on a reference cage frequency (see column 4 lines 25-40).

Regarding claims 19 and 20, Liu discloses means for applying the feed-forward input signal to minimize the track shape irregularities while track servo patterns are written on the disc by a servo-writing head operably connected to the servo-writer (see column 4 lines 25-40).

Regarding claim 21, Liu discloses that the reference cage frequency is determined based on PES values measured by a reference position sensor on a reference track, each PES value corresponding to a sector on the reference track (see column 4 lines 15-17).

Regarding claim 22, Liu discloses that a phase of the reference cage frequency is adjusted based on an angular displacement of the reference position sensor relative to the servo-writing head on the disc (see column 4 lines 58-66 and column 5 lines 1-3).

Claims 1-4 are the method steps associated with the apparatus of claims 10-13, 18-22 and therefore are rejected on the same basis as the apparatus claims.

Allowable Subject Matter

5. Claims 5-9, 14-17, 23-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 308-9051, (formal communications, please mark

"EXPEDITED PROCEDURE")

Or:

(703) 308-6606 (for informal or draft communications, please label

"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021

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Crystal Drive, Arlington. V.A., Sixth Floor (receptionist).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Tzeng whose telephone number is 703-305-4841. The examiner can normally be reached on weekdays from 9:30 am to 6:00 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 703-308-4825. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-746-5710 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Fred F. Tzeng

F.T.

February 29, 2004


DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600